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allow the usurping duck hawks ample time to pay the rent, and found things vice-versa once more. The prairie falcons tenanted the ledge as of old and we were fooled. We took one infertile egg, and the other four were pipped or seamed across preparatory to the shells breaking in twain. What the result will be this year is too early to say, but I expect the rightful owners to be in possession. It is apparent there is one place for a nest among numerous, to us, suitable caves and holes in a given locality that would be selected by any pair of birds in preference to all others, in which, if robbed of the first set, they will deposit the second, perhaps a third set that season, and rarely in a nesting place close by, but I have always known both species to return to the original nest at the beginning of next season.

SUPPLEMENT. On April 3, 1903, we visited the ledge once more having been delayed fully a week by rains rendering the roads unfit for travel. The nest was approached from the north through the brush and sage and so accurately gauged that we arrived in a straight line almost. When close to the precipice the cracking of a dry branch scared the prairie falcon from her nest, about six feet to one side of us. Launching like a dart into the air, with loud cries, she sped like a brown meteor into the sunshine over the crags below, until her initial velocity was allowed to wane, and for a second or two she hung in the landscape slightly below, the master touch to an unsurpassable natural panorama. The five eggs contained small embryos, and by comparison coincide with those of the original bird. Eggs from her average larger than any from other of her species that I have handled.

Later: May 6, the second set of the season was obtained from a similar site in the same ledge about twelve feet from the top. One egg was sterile, the others were slightly incubated.

Bird Life on the Farallone Islands

BY HENRY B. KAEDING

Illustrated from Photographs by the Author

THE Farallone Islands lie about twenty-four miles west of the city of San Francisco and are to be reached from that point by tug or sail-boat. They consist of two main islets about four miles apart. The north islet is inaccessible except in very calm weather and the following notes were taken on the South Farallones only. These South Farallones are two islets lying very close together,—the fact that they are two islets instead of one being due to a narrow cleft that can be spanned by a plank.

On the eastern islet of the South Farallone group is located the Light House Station and the Weather Bureau Station. The light house proper is on the highest point of the eastern end. There are no houses or buildings of any kind on the western islet, the only structure being the tall signal staff on the highest peak.

The party that visited the islands during the first week in June, 1903, comprised, besides the writer, Frank M. Chapman and wife, Mrs. Davenport, Louis A. Fuertes, Dr. T. S. Palmer, and W. Otto Emerson. Leaving San Francisco on the 2nd of June at 10 a. m., we arrived at the island about 2:30 p. m. after a very rough passage. As the little steamer approached the rocks we saw the birds ris-

ing in clouds from their resting places and swinging around us and out to sea, passing others which were en route for the rocks. Tufted puffins, like Gargantuan black swifts, sped like animated bullets to and fro; California murres, less partial to flight, terminated their journeys in the water and dotted the waves in every direction; cormorants winged their heavy way from the detached rocks near the main island, the different species readily distinguishable by the characteristic breeding plumages. The odor of sea-fowl and guano filled the air, and from the rookeries came the ceaseless chatter and croaking of thousands of birds.

Photography being the main object in view, after settling our traps we started out to look the rookeries over with a view of picking the best spots for next day's work. We soon placed the different colonies of murres, gulls and cormorants, and after securing a few photos, returned to a late supper and bed.

June 3rd found us early at work, and during the forenoon interesting photo-



TUFTED PUFFIN AT MOUTH OF BURROW

graphs were secured, mainly of murres, pigeon guillemots, and Cassin auklets. The guillemots were found distributed fairly well over the island, thicker perhaps at the eastern end, where broken rock and detached granite boulders form many ideal nooks and crannies for nesting places. The eggs are two in number and are placed in the crevices of the rocks without any attempt at making a nest. These are striking birds in their sooty black dress, white wing-patches and vivid scarlet bills, eyes and feet. When disturbed by the approach of an intruder they open wide their bills and emit a peculiarly weak but penetrating "whistle." Several long-distance photos were secured but we could not get closer to them than twenty feet, and they were too wary to catch on the nest. With these birds, nesting was just fairly under way, nearly all the burrows holding a full complement of eggs.

The Cassin auklets nest all over the island, wherever a suitable burrow is available. They are more of a burrowing bird than the guillemots, often excavat-

ing their own burrows where there is soil enough, or using a crevice in the rocks if it is small and deep, while the guillemots will use a larger and more exposed crevice under a boulder. The auklets are very plentiful on these islands, less so, however, than on the islands farther south along the Lower California coast, where sandy soil offers every opportunity for them to excavate long and perfect burrows. At this date, June 3, the auklets all had eggs and very few were fresh, incubation being apparently about half completed.

These Cassin auklets are curious little fellows, preferring to do their foraging and courting at night and keeping out of sight during the day. Every night and all night long they keep up a constant talking and calling, flying about in the dark with apparent ease.

At the eastern end of the island is located one of the most curious sights of the place: Murre Cave it is called, and is in fact a great narrow vertical cleft in the cliff, facing seaward and rather difficult of access. It extends into the cliff for



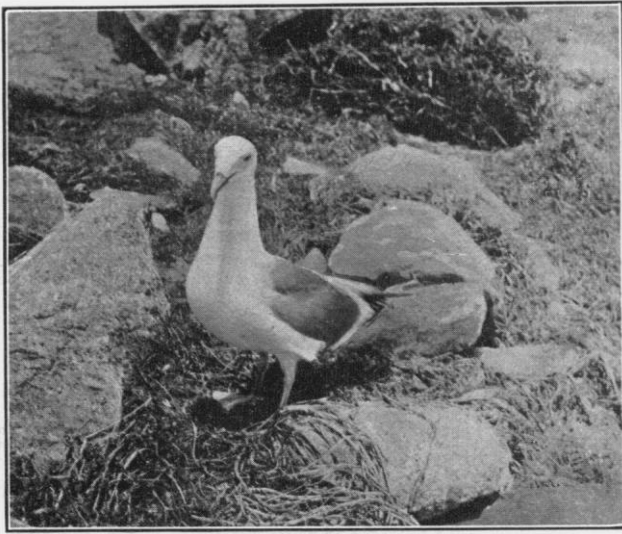
CALIFORNIA MURRE

perhaps 100 feet, and there is a broad ledge or bench about half way in, and the whole place is alive with the murres. They sit close together, breast to back, side to side, till the cave is lined with their snowy breasts and sooty heads. They were uneasy at our approach, but few left till we had been inside for some little time. Then the leaders started, and after them came a stream of murres that kept increasing in volume till the air was full and the mouth of the cave was vomiting a cloud of birds, like smoke pouring out of a chimney. The murres were nesting in other colonies at various places about the island, one great colony being on a rock just off shore on the north side. At this date they had barely started laying. We found only a few eggs, fresh laid, and this was evidently the reason that the birds were shy and easily disturbed. Had we been three weeks later, when all would have been found incubating, we would doubtless have been able to go amongst them without disturbing them very much, as they are fearful of leaving their eggs on account of the robbing of the gulls.

As the day progressed we visited many parts of the island and secured numerous photos.

Rock wrens were plentiful everywhere, their cheery song the only melodious note in the unceasing discord of the feathered multitude. They had their full-fledged young out receiving the first instructions in flight, although a nest was found containing fresh eggs.

The tufted puffins form an interesting part of the bird-life of these lonely little rocks. They are scattered over the whole island, but nest most abundantly in the rocky crevices at the extreme western end. Their nesting burrows, like those of the guillemots, are crevices in the cliffs and cavities under boulders, but they select deeper niches than the guillemots and are quite close sitters, it often being possible to find the bird on the nest. The single white egg is laid on the bottom of the crevice with no attempt at nest construction, and at this date the eggs were partially incubated. Often the mate of the incubating bird will take up its position like a sentinel on the



WESTERN GULL ENTERING NEST

rock close to the entrance of the burrow, and it was possible to approach within a few feet of them and secure a photograph. Dealing with the incubating birds, however, was a matter of difficulty, as their narrow, powerful bill is armed with a cutting edge as sharp as a knife and they are not at all averse to putting it into operation.

Not the least interesting of this colony are the western gulls. Their numbers are decreasing and their nesting colonies are scattered, the largest being on the southwest part of the

island. The nests are built of dried weeds, brown and mottled in color, and the nest and eggs so harmonize with the surroundings that it is difficult to see them readily until almost close enough to step on them. At this date they had eggs, some of the nests not yet with a full complement and others with partially incubated eggs. The birds are wary and not close sitters, due doubtless to the fact that they are subjected to systematic robbing twice a week by the light-house keepers, who make use of their eggs till the murres start to lay, when the gulls get a chance to raise their young and the murres contribute to the daily fare of the men. Perhaps this is retribution, for the gulls themselves are the most arrant robbers among birds. It is no uncommon sight to see a flock of gulls hovering over a nesting colony of murres in an effort to drive them from their eggs, and seizing every egg that is exposed. Should another cause drive the murres from their eggs, the gulls reap a harvest. This is perhaps as potent a factor as any in the destruction of the murres, for while the human eggers took only the fresh eggs, they disturbed the whole colony of murres, and the gulls took everything in sight.

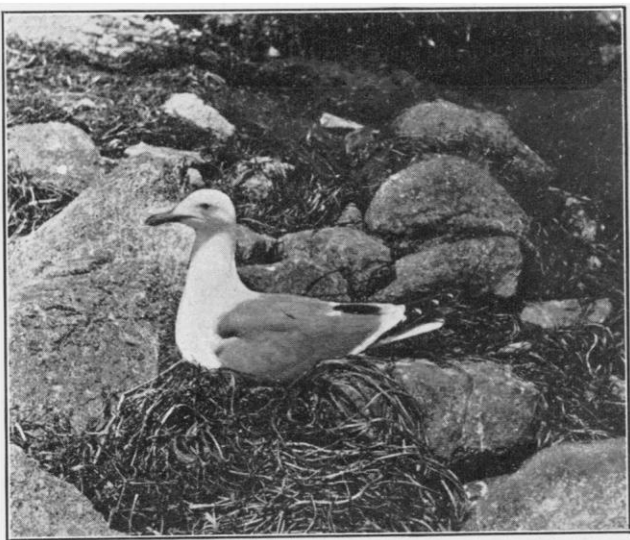
It is the same with young birds, whether they be young murres or cormorants—the gulls take all they can get. Mr. Fuertes related a case where he inadvertently disturbed a rookery of several hundred cormorants, and saw the gulls clean out every nest before the cormorants could return.

Photographs of nesting gulls were secured by focusing the camera on the nest and retiring to a distance with a cord attached to the shutter, and patiently awaiting the return of the bird.

Of the cormorants the island supports three breeding species: the Farallone cormorant is the least common, there being only one small colony of these fowl, containing not more than seventy individuals. They are nesting in a sheltered nook nearly at the summit of the island and had young when we were there. We were able to approach them quite close as the old birds were reluctant to leave the young exposed to the gulls or to the fierce rays of the sun, so that we got good photos.

The Baird cormorants nest in small scattered colonies in various places over the whole island, selecting the ledges of the cliffs for nesting sites. They had full sets of eggs at this date and were rather wary, not permitting us to get close enough to photograph them on the nest except at long range. This cormorant is readily distinguished in the nuptial plumage by the conspicuous white flanks.

Brandt cormorants were the most abundant of the three, and were starting to lay at this date. They seem to prefer the detached rocks about the island and covered them in thousands. There is also a large colony on the northwestern slope of the island.



WESTERN GULL ON NEST

Red phalaropes and northern phalaropes were not uncommon in the tide pools along the coast line, and a few black turnstones, wandering tattlers, black oyster-catchers and surf birds were seen along the water's edge.

A single pair of ravens had their nest in a high cliff on the west end, but they were marked by the keepers and shot later, in expiation of their raids on the domestic hen houses.

Last, but quite the contrary of least interesting of this great colony, are the petrels. Two species of these little fellows are known to breed there, but we saw only one. The Leach petrel was found on the Farallones by Mr. Leverett M. Loomis some years ago, but all those that we discovered during our short stay were ashy petrels, and they are undoubtedly the only petrel that nest there in any numbers. The stone walls that run here and there over the island shelter in their crevices many a petrel and at this date they had fresh eggs. Many collectors and

the men on the island can locate the petrels in the walls by the characteristic musky odor they give off, but we were not able to do so ourselves, and found the easiest way was to prowling around after dark, when, like the auklets, these diminutive Tubinares are chattering and talking to each other, and to mark the places where the sounds came from. In this way we located several but unfortunately were not able to find one on the egg in such a position that we could photograph it, so that we were obliged to return without a photo of this species.

These petrels, like others of their kind that nest farther south, are nocturnal in their habits during the breeding season, and seem to exchange places shortly after dark, the incoming birds replacing the mate on the nest after an exchange of courtesies and a chat over the day's happenings. These conversations are carried on in a queer little sing-song twitter, regularly punctuated with a gasp that re-



FARALLONE CORMORANTS AND YOUNG

sembles the exhaust of a Lilliputian engine. This twitter is characteristic of all petrels, varying with the species, and has been admirably described by Mr. A. W. Anthony.

When flying about in the dim light the petrels resemble bats. Their flight is fluttering and zig-zag and they frequently flit by the head of the watcher close enough for him to feel the wind of their wings. Often they run into the glass around the big light, or into the telephone wires that stretch from the light-house to the keepers houses and the siren, and terminate their erratic careers then and there. Small, dainty and velvety, they are the prettiest little birds imaginable, and would be perfect were it not for their habit of vomiting oil over everything when disturbed.

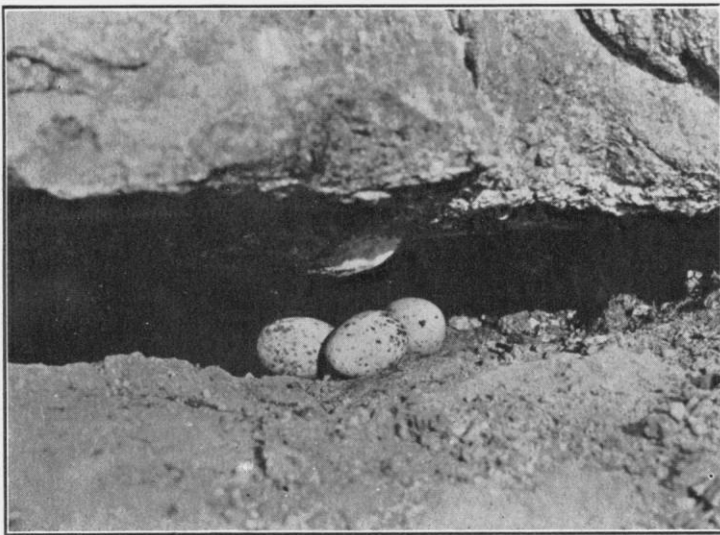
We remained on the Farallones nearly three days, returning to San Francisco June 5, 1903, and although we had all seen sea-bird colonies before, we were

unanimous in saying that the Farallones are unique. There is nothing to compare with them on the Pacific Coast and the eastern members of the party said the same for the Atlantic coast. The thing that impresses the ornithologist most on a first visit to these islands is the number of birds *in evidence*; the great shearwater breeding grounds of the southern islands, the vast auklet and petrel colonies of the same localities, do not impress the observer with the force that the colonies of murre and cormorants on the Farallones do, for they are not in sight. True that in places where the wedge-tailed shearwater (*Puffinus cuneatus*) nest by thousands, the air is at times clouded with birds, yet these is no comparison between this and the Farallones, where the nesting colonies are open and the birds in sight at all times. A trip to the Farallones is a liberal education.

Following is a list of the birds observed in the Farallones:

Phalacrocorax penicillatus (Brandt) Brandt Cormorant.

Phalacrocorax pelagicus resplendens (Aud.) Baird Cormorant.



PIGEON GUILLEMOT'S EGGS IN SITU

Phalacrocorax dilophus albociliatus (Ridgw.) Farallone Cormorant.

Oceanodroma homochroa (Coues) Ashy Petrel.

Larus occidentalis (Aud.) Western Gull.

Lunda cirrhata (Pall.) Tufted Puffin.

Ptychoramphus aleuticus (Pall.) Cassin Auklet.

Cepphus columba (Pall.) Pigeon Guillemot.

Uria troile californica (Bryant) California Murre.

Heteractitis incanus (Gmel.) Wandering Tattler.

Aphriza virgata (Gmel.) Surf Bird.

Arenaria melanocephala (Vig.) Black Turnstone.

Hematopus bachmani (Aud.) Black Oyster-catcher.

Crymophilus fulicarius (Linn.) Red Phalarope.

Phalaropus lobatus (Linn.) Northern Phalarope.

Corvus corax sinuatus (Wagl.) American Raven.

Salpinctes obsoletus (Say) Rock Wren.